

TECHNICAL INFORMATION ON BUILDING MATERIALS  
FOR USE IN THE DESIGN OF LOW-COST HOUSING

TIBM-12

\*\*\*\*\*

THE NATIONAL BUREAU OF STANDARDS  
UNITED STATES DEPARTMENT OF COMMERCE  
WASHINGTON, D. C.

---

May 18, 1936.

---

THERMAL INSULATION

Insulating Values for Frame Wall Construction--  
Wood Siding with Various Types of Interior Finishes

This is a brief presentation of calculated thermal insulating values for frame wall construction--wood siding with various types of interior finishes, based on tests conducted by the National Bureau of Standards and presented in detail in former Letter Circular No. 227, "Thermal Insulation", (April 19, 1927);<sup>1</sup> and Bureau of Standards Research Paper No. 291, "Heat Transfer Through Building Walls", (August 6, 1930),<sup>2</sup> by M. S. Van Dusen and J. L. Finck.

---

<sup>1</sup>Out of Print.

<sup>2</sup>Out of print and not available by purchase but may be consulted in Government depository libraries.

1. The first part of the paper discusses the importance of the study of the history of the United States.

2. The second part of the paper discusses the importance of the study of the history of the United States.

3. The third part of the paper discusses the importance of the study of the history of the United States.

4. The fourth part of the paper discusses the importance of the study of the history of the United States.

5. The fifth part of the paper discusses the importance of the study of the history of the United States.

6. The sixth part of the paper discusses the importance of the study of the history of the United States.

7. The seventh part of the paper discusses the importance of the study of the history of the United States.

8. The eighth part of the paper discusses the importance of the study of the history of the United States.

9. The ninth part of the paper discusses the importance of the study of the history of the United States.

COMPARATIVE INSULATING VALUES (I.V.) FOR FRAME WALL CONSTRUCTION  
WOOD SIDING WITH VARIOUS TYPES OF INTERIOR FINISHES<sup>1</sup>

Exterior Wall Construction	Type	Commercial Insulating Materials	Interior Finish		
			Plaster	3/4" Plaster and Metal Lath	3/4" Plaster and Wood Lath: Rigid Insulation Boards
Finish	Type of	(1 5/8" x 3 5/8" Dressed)	"or 1/2" Plaster	"	:(If plaster is omitted, deduct 0.22)
	Sheathing	"Board <sub>2</sub> or Wall	"	"	"
		"Board <sub>2</sub> alone	"	"	"
		"	"	"	"
	Type	: Thick-	: 1/2"	: 3/4"	: 1"
		: ness	: I.V. <sup>1</sup>	: I.V. <sup>1</sup>	: I.V. <sup>1</sup>
		: Inches	:	:	:
		: 3 5/8"	: 4.3	: 4.5	: 6.4
		: Unfilled Air Space	: 6.1	: 6.3	: 7.2
		: Flexible Insulation	: 7.1	: 7.5	: 8.3
		: Placed against one	: 8.0	: 8.5	: 9.0
		: side, with one air	: 11.7	: 9.4	: 10.0
		: space	: 11.9	: 10.2	: 10.9
		: Rigid Insulation Board	: 6.5	: 13.1	: 14.6
		: Centered, with 2 air	: 7.3	: 7.9	: 9.4
		: spaces of equal thick-	: 8.0	: 8.7	: 10.2
		: ness	:	: 9.4	: 10.9
		: Flexible Insulation	: 6.8	:	:
		: Centered, with 2 air	: 7.8	: 8.2	: 9.8
		: spaces of equal thick-	: 8.7	: 9.2	: 10.7
		: ness	: 12.4	: 10.1	: 11.7
		: "Fill" Insulation	: 15.7	: 13.8	: 15.3
		: Flexible Insulation	: 16.6	: 17.1	: 18.6
		:	: 16.8	: 18.0	: 19.5
		:	:	:	:
		:	:	:	:

<sup>1</sup>The insulating value is defined as the number of hours required for the passage of 1 Btu of heat through 1 square foot of wall area, per degree Fahrenheit temperature difference between the air on one side of the wall and the air on the other.

<sup>2</sup>If 1/2" plaster is applied to plaster board or wall board, add 0.22.

<sup>3</sup>For siding and paper on studs, without sheathing, deduct 0.75.

<sup>4</sup>If wood sheathing is replaced by 1/2", 3/4", or 1" rigid insulation boards, add 0.77, 1.52, or 2.28 respectively.

<sup>5</sup>If 1/2", 3/4", or 1" rigid insulation board is used with wood sheathing, add 1.52, 2.27, or 3.03 respectively.

<sup>6</sup>If 1/2", 3/4", or 1" flexible insulation is used with wood sheathing, add 1.85, 2.78, or 3.70 respectively.

